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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,483	11/01/2001	Jeffrey W. Carr	CARR-01000US2	2209

23910 7590 07/23/2004

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EXAMINER


OLSEN, ALLAN W

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/002,483	CARR, JEFFREY W.	
	Examiner	Art Unit	
	Allan Olsen	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 30-33 and 35-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/02, 8/02, 5&6/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION
Election/Restrictions

Applicant's election without traverse of Group I, claims 1-30 and 34-41, in the reply filed on May 7, 2004 is acknowledged. Additionally, Applicant elected the species of "A method of shaping an optic". Applicant states they believe claims 34 and 2-29, to be readable upon the elected species.

Claims 31-33 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention and claims, 30 and 35-40 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on May 7, 2004.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-20, 22, 23, 25, 26, 28, 29 and 34 are rejected under 35 U.S.C. 102(a) as being anticipated by Böhm et al in DE 199 25 790 A1 (hereinafter, Böhm).

Böhm teaches a method of shaping an optic with a plasma torch. Böhm teaches placing the workpiece in a plasma processing chamber including a plasma torch; translating at least one of the workpiece and the plasma torch; and using reactive atom plasma processing to shape the surface of the workpiece with the

Art Unit: 1763

discharge from the plasma torch (see: figure 1 and 3; Section B, Example 1). Böhm teaches shaping the surface of the workpiece by removing material from the surface of the workpiece (see abstract). Böhm teaches rotating the workpiece with respect to the plasma torch (see abstract). Böhm teaches placing a precursor in a central channel of the plasma torch (see fig. 1). Böhm teaches controlling the flow of the plasma component gases into the plasma torch from between about 0 ml/min to about 2,000 ml/min (see table 1). Böhm teaches introducing a plasma gas through an outer tube of the plasma torch introducing an auxiliary gas through a second of three concentric tubes in the plasma torch (see claims 1 and 18). Böhm teaches using an auxiliary gas to keep hot plasma away from a central channel of the plasma torch and to adjust the position of a discharge (see claim 1). Böhm teaches introducing a plasma gas tangentially (see gas supply 5 in figure 5). Böhm teaches controlling the size of a discharge by selecting the inner diameter of an outer tube of the plasma torch (see abstract and 1st paragraph under section heading "Solution Provided by Invention"). Böhm teaches maintaining the processing chamber at about atmospheric pressure (see 3rd paragraph under section heading "Solution Provided by Invention").

Claims 1-3, 5-9, 12, 14, 20, 22, 25, 29 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Zarowin et al. in Rapid Non-contact, Damage Free Shaping of Optical & Other Surfaces with Plasma Assisted Chemical Etching, 43rd Annual Symposium on Frequency Control" 1989, pages 623-626 (hereinafter, Zarowin).

Zarowin teaches a method of treating the surface of a workpiece with a plasma torch. Zarowin teaches the treating may comprise; etching, coating, smoothing,

polishing and shaping of a workpiece surface. Zarowin teaches the workpiece may comprise an optic. Zarowin teaches translating at least one of the workpiece and the plasma torch. Zarowin teaches the process causes minimal or no sub-surface damage to the workpiece. Zarowin teaches controlling the rate of the etching process by controlling the amount of gas provided to the plasma. See entire document.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Böhm as applied to claim 1 above and further in view of US Patent 5,961,772 issued to Selwyn.

Böhm does not teach that the process may be used to clean a workpiece.

Selwyn teaches using a plasma torch to clean a workpiece.

It would have been obvious to one skilled in the art to use the plasma torch of Böhm to clean a workpiece because, as Selwyn notes, surface cleaning is a fundamental requirement for many industrial applications and Selwyn teaches that the plasma torch is well suited to accomplish the task of cleaning.

Claims 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarowin as applied to claim 1 above and further in view of US Patent 5,961,772 issued to Selwyn.

Zarowin does not teach that the process may be used to clean a workpiece.

Zarowin does not teach introducing a plasma gas tangentially.

Selwyn teaches using a plasma torch to clean a workpiece. Selwyn teaches introducing a plasma gas tangentially.

It would have been obvious to one skilled in the art to use the plasma torch of Zarowin to clean a workpiece because, as Selwyn notes, surface cleaning is a fundamental requirement for many industrial applications and Selwyn teaches that the plasma torch is well suited to accomplish the task of cleaning. It would have been obvious one skilled in the art to introduce a plasma gas tangentially because Selwyn teaches it is beneficial to create turbulent flow dynamics and that increasing the residence time of plasma species leads to an increase in plasma density.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Böhm as applied to claim 1 above and further in view of US Patent 4,674,683 issued to Fabel.

Böhm does not teach maintaining the temperature of the plasma torch between 5000° and 15,000° C.

Fabel teaches the temperature of plasma processes.

It would have been obvious to one skilled in the art to maintain the temperature of Böhm's plasma torch process to between 5000° and 15,000° C because Fabel teaches that this is the standard temperature range for plasma processes.

Claims 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarowin as applied to claim 1 above and further in view of US Patent 4,674,683 issued to Fabel.

Zarowin does not teach introducing a plasma gas tangentially. Zarowin does not teach maintaining the temperature of the plasma torch between 5000° and 15,000° C.

Fabel teaches introducing a plasma gas tangentially. Fabel teaches the temperature of plasma processes.

It would have been obvious one skilled in the art to introduce a plasma gas tangentially because Fabel that provision and control of a tangential flow component provides a degree of control over the amount of energy that is coupled into the plasma gas as well as the shape, position and length of the plasma plume (see column 5, line 55 - column 6, line 15). It would have been obvious to one skilled in the art to maintain the temperature of Böhm's plasma torch process to between 5000° and 15,000° C because Fabel teaches this is a standard temperature range for plasma processes.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Böhm as applied to claim 1 above and further in view of US Patent 6,105,534 issued to Siniaguine et al. (hereinafter, Siniaguine).

Böhm does not teach using a plasma torch with a multiple head.

Siniaguine teaches using a plasma torch with a multiple head.

It would have been obvious to one skilled in the art to use a plasma torch with a multiple head because Siniaguine teaches that this increases efficiency.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zarowin as applied to claim 1 above and further in view of US Patent 6,105,534 issued to Siniaguine et al. (hereinafter, Siniaguine).

Zarowin does not teach using a plasma torch with a multiple head.

Siniaguine teaches using a plasma torch with a multiple head.

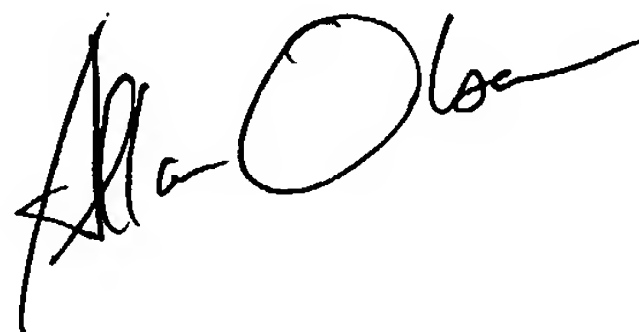
It would have been obvious one skilled in the art to use a plasma torch with a multiple head because Siniaguine teaches that this increases efficiency.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M-F 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Mills can be reached on 571-272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allan Olsen
Primary Examiner
Art Unit 1763